STATE OF NEW HAMPSHIRE
INTER-DEPARTMENT COMMUNICATION

DATE: December 2, 2015

FROM: Matt Urban
Wetlands Program Manager

AT (OFFICE): Department of Transportation
Bureau of Environment

SUBJECT Dredge & Fill Application
North Hampton, 16060

TO Gino Infascelli, Public Works Permitting Officer
New Hampshire Wetlands Bureau
29 Hazen Drive, P.O. Box 95
Concord, NH 03302-0095

Forwarded herewith is the application package prepared by NH DOT Bureau of Highway Design for the subject Major impact project. This project is classified as Major per Env-Wt 303.02(p). The project is located on Walnut Avenue over the Winnicut River in the Town of North Hampton, NH. This work consists of replacing an existing 72" CMP with a new 8'x7' box culvert, including headwalls, wingwalls, and footings.

This project was reviewed at the Natural Resource Agency Coordination Meeting on October 14th 2014 and January 21st 2015. The minutes from those meetings have been included within this application. They can also be found by accessing the following link: http://www.nh.gov/dot/org/projectdevelopment/environment/units/project-management/nracrmeetings.htm

Mitigation is not required for this project as noted in the January 21st Natural Resource Agency Coordination Meeting minutes.

The lead people to contact for this project are Tobey Reynolds, Highway Design (271-2524 or treynolds@dot.state.nh.us) or Matt Urban, Wetlands Program Manager, Bureau of Environment (271-3226 or murban@dot.state.nh.us).

A payment voucher has been processed for this application (Voucher #414778) in the amount of $416.60.

If and when this application meets with the approval of the Bureau, please send the permit directly to Matt Urban, Wetlands Program Manager, Bureau of Environment.

MRU:mru
Enclosures

cc:
BOE Original
Town of North Hampton, (4 copies via certified mail)
NH DOT Bureau of Construction
Darrel Elliott, Bureau of Environment
Edna Feighner, (R&C#6302)
Carol Henderson, NH Fish and Game
Maria Turr, USF&WS
Mark Kern, EPA
Michael Hicks, US Army Corp of Engineers

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NHDES-W-06-012

WETLANDS PERMIT APPLICATION

Water Division/ Wetlands Bureau
Land Resources Management

Check the status of your application: http://des.nh.gov/onestop

RSA/Rule: Env-Wq 100-900

1. REVIEW TIME:
Indicate your Review Time below. Refer to Guidance Document A for instructions.

☒ Standard Review (Minimum, Minor or Major Impact) ☐ Expedited Review (Minimum Impact only)

2. PROJECT LOCATION:
Separate applications must be filed with each municipality that jurisdictional impacts will occur in.

ADDRESS: **Walnut Avenue, West of Intersection with N.H. 151 (Post Road)** | TOWN/CITY: **North Hampton**

TAX MAP: **N/A** | BLOCK: **N/A** | LOT: **N/A** | UNIT: **N/A**

USGS TOPO MAP WATERBODY NAME: **Winnicut River** ☒ NA | STREAM WATERSHED SIZE: **3078 Acres** ☐ NA

LOCATION COORDINATES (If known): ☐ Latitude/Longitude ☐ UTM ☐ State Plane

3. PROJECT DESCRIPTION:
Provide a brief description of the project outlining the scope of work. Attach additional sheets as needed to provide a detailed explanation of your project. DO NOT reply "See Attached" in the space provided below.

Removal of invasive species and construction of a water diversion structure. Building cofferdams and perimeter controls for sediment and dewatering. Excavation of the existing 72" corrugated metal pipe as well as pavement, roadway material and muck. Placement of granular backfill and structural material to support the new 8'x7' box culvert, headwall, wing walls, and footings. Relocation of utilities as necessary.

4. SHORELINE FRONTAGE

☒ NA This lot has no shoreline frontage. SHORELINE FRONTAGE:

Shoreline frontage is calculated by determining the average of the distances of the actual natural navigable shoreline frontage and a straight line drawn between the property lines, both of which are measured at the normal high water line.

5. RELATED PERMITS, ENFORCEMENT, EMERGENCY AUTHORIZATION, SHORELAND, ALTERATION OF TERRAIN, ETC...

N/A

6. NATURAL HERITAGE BUREAU & DESIGNATED RIVERS:
See the Instructions & Required Attachments document for instructions to complete a & b below.

a. Natural Heritage Bureau File ID: NHB **15** - **2579** .

b. ☐ Designated River the project is in ¼ miles of: _____ ; and
date a copy of the application was sent to Local River Advisory Committee: Month: __ Day: __ Year: ____
☒ NA

7. APPLICANT INFORMATION (Desired permit holder)

LAST NAME, FIRST NAME, M.I.: **NH Department of Transportation, Highway Design**

TRUST / COMPANY NAME: | MAILING ADDRESS: **7 Hazen Drive, PO Box 483**

TOWN/CITY: **Concord** | STATE: **NH** | ZIP CODE: **03302-0483**

EMAIL or FAX: **(603) 271-7025** | PHONE: **(603) 271-3734**

ELECTRONIC COMMUNICATION: By initialing here: TR, I hereby authorize DES to communicate all matters relative to this application electronically

8. PROPERTY OWNER INFORMATION (If different than applicant)

LAST NAME, FIRST NAME, M.I.: **NH Department of Transportation**

TRUST / COMPANY NAME: | MAILING ADDRESS: **7 Hazen Drive, PO Box 483**

TOWN/CITY: **Concord** | STATE: **NH** | ZIP CODE: **03302-0483**

EMAIL or FAX: **(603) 271-3914** | PHONE: **(603) 271-3734**

ELECTRONIC COMMUNICATION: By initialing here _____, I hereby authorize DES to communicate all matters relative to this application electronically

9. AUTHORIZED AGENT INFORMATION

LAST NAME, FIRST NAME, M.I.: | COMPANY NAME:

MAILING ADDRESS:

TOWN/CITY: | STATE: | ZIP CODE:

EMAIL or FAX: | PHONE:

ELECTRONIC COMMUNICATION: By initialing here _____, I hereby authorize DES to communicate all matters relative to this application electronically

10. PROPERTY OWNER SIGNATURE:

See the Instructions & Required Attachments document for clarification of the below statements

By signing the application, I am certifying that:

1. I authorize the applicant and/or agent indicated on this form to act in my behalf in the processing of this application, and to furnish upon request, supplemental information in support of this permit application.
2. I have reviewed and submitted information & attachments outlined in the Instructions and Required Attachment document.
3. All abutters have been identified in accordance with RSA 482-A:3, I and Env-Wt 100-900.
4. I have read and provided the required information outlined in Env-Wt 302.04 for the applicable project type.
5. I have read and understand Env-Wt 302.03 and have chosen the least impacting alternative.
6. Any structure that I am proposing to repair/replace was either previously permitted by the Wetlands Bureau or would be considered grandfathered per Env-Wt 101.47.
7. I have submitted a Request for Project Review (RPR) Form (www.nh.gov/nhdhr/review) to the NH State Historic Preservation Officer (SHPO) at the NH Division of Historical Resources to be reviewed for the presence of historical/ archeological resources.
8. I authorize DES and the municipal conservation commission to inspect the site of the proposed project.
9. I have reviewed the information being submitted and that to the best of my knowledge the information is true and accurate.
10. I understand that the willful submission of falsified or misrepresented information to the New Hampshire Department of Environmental Services is a criminal act, which may result in legal action.
11. I am aware that the work I am proposing may require additional state, local or federal permits which I am responsible for obtaining.
12. The mailing addresses I have provided are up to date and appropriate for receipt of DES correspondence. DES will not forward returned mail.

Property Owner Signature	Print name legibly	Date
Tobey Reynolds	Tobey Reynolds	11/25/15

MUNICIPAL SIGNATURES

11. CONSERVATION COMMISSION SIGNATURE

The signature below certifies that the municipal conservation commission has reviewed this application, and:

1. Waives its right to intervene per RSA 482-A:11;
2. Believes that the application and submitted plans accurately represent the proposed project; and
3. Has no objection to permitting the proposed work.

⇨	Print name legibly	Date

DIRECTIONS FOR CONSERVATION COMMISSION

1. Expedited review ONLY requires that the conservation commission's signature is obtained in the space above.
2. Expedited review requires the Conservation Commission signature be obtained **prior** to the submittal of the original application to the Town/City Clerk for signature.
3. The Conservation Commission may refuse to sign. If the Conservation Commission does not sign this statement for any reason, the application is not eligible for expedited review and the application will reviewed in the standard review time frame.

12. TOWN / CITY CLERK SIGNATURE

As required by Chapter 482-A:3 (amended 2014), I hereby certify that the applicant has filed four application forms, four detailed plans, and four USGS location maps with the town/city indicated below.

⇨ Town/City Clerk Signature	Print name legibly	Town/City	Date

DIRECTIONS FOR TOWN/CITY CLERK:

Per RSA 482-A:3,I

1. For applications where "Expedited Review" is checked on page 1, if the Conservation Commission signature is not present, NHDES will accept the permit application, but it will NOT receive the expedited review time.
2. IMMEDIATELY sign the original application form and four copies in the signature space provided above;
3. Return the signed original application form and attachments to the applicant so that the applicant may submit the application form and attachments to NHDES by mail or hand delivery.
4. IMMEDIATELY distribute a copy of the application with one complete set of attachments to each of the following bodies: the municipal Conservation Commission, the local governing body (Board of Selectmen or Town/City Council), and the Planning Board; and
5. Retain one copy of the application form and one complete set of attachments and make them reasonably accessible for public review.

DIRECTIONS FOR APPLICANT:

1. Submit the original permit application form bearing the signature of the Town/ City Clerk, additional materials, and the application fee to NHDES by mail or hand delivery.

13. IMPACT AREA:

For each jurisdictional area that will be/has been impacted, provide square feet and, if applicable, linear feet of impact

Permanent: impacts that will remain after the project is complete.

Temporary: impacts not intended to remain (and will be restored to pre-construction conditions) after the project is complete.

JURISDICTIONAL AREA	PERMANENT Sq. Ft. / Lin. Ft.		TEMPORARY Sq. Ft. / Lin. Ft.	
Forested wetland		☐ ATF		☐ ATF
Scrub-shrub wetland	40	☐ ATF	442	☐ ATF
Emergent wetland	45	☐ ATF	526	☐ ATF
Wet meadow		☐ ATF		☐ ATF
Intermittent stream		☐ ATF		☐ ATF
Perennial Stream / River	225 / 27	☐ ATF	805 / 89	☐ ATF
Lake / Pond	/	☐ ATF	/	☐ ATF
Bank - Intermittent stream	/	☐ ATF	/	☐ ATF
Bank - Perennial stream / River	/	☐ ATF	/	☐ ATF
Bank - Lake / Pond	/	☐ ATF	/	☐ ATF
Tidal water	/	☐ ATF	/	☐ ATF
Salt marsh		☐ ATF		☐ ATF
Sand dune		☐ ATF		☐ ATF
Prime wetland		☐ ATF		☐ ATF
Prime wetland buffer		☐ ATF		☐ ATF
Undeveloped Tidal Buffer Zone (TBZ)		☐ ATF		☐ ATF
Previously-developed upland in TBZ		☐ ATF		☐ ATF
Docking - Lake / Pond		☐ ATF		☐ ATF
Docking - River		☐ ATF		☐ ATF
Docking - Tidal Water		☐ ATF		☐ ATF
TOTAL	310 / 27		1773 / 89	

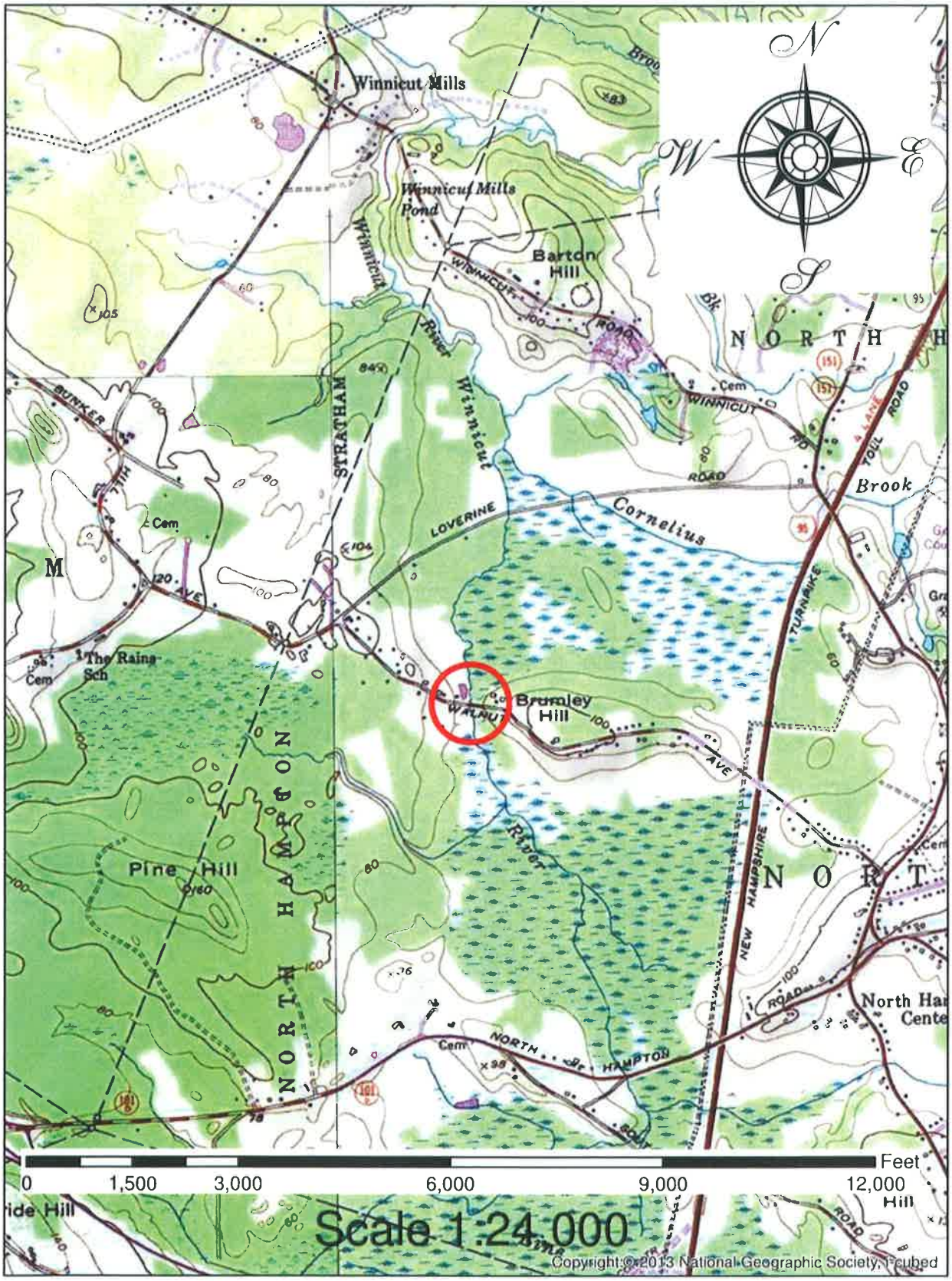
14. APPLICATION FEE: See the Instructions & Required Attachments document for further instruction

☐ Minimum Impact Fee: Flat fee of $ 200

☒ Minor or Major Impact Fee: Calculate using the below table below

Permanent and Temporary (non-docking)	**2083** sq. ft.	X $0.20 =	$ **416.60**
Temporary (seasonal) docking structure:	sq. ft.	X $1.00 =	$
Permanent docking structure:	sq. ft.	X $2.00 =	$
Projects proposing shoreline structures (including docks) add $200 =			$
		Total =	$ **416.60**
The Application Fee is the above calculated Total or $200, whichever is greater =			$ **416.60**

North Hampton 16060



THE STATE OF NEW HAMPSHIRE
DEPARTMENT OF ENVIRONMENTAL SERVICES
LAND RESOURCES MANAGEMENT
WETLANDS BUREAU
29 Hazen Drive, PO Box 95, Concord, NH 03302-0095
Phone: (603) 271-2147 Fax: (603) 271-6588
http://des.nh.gov/organization/divisions/water/wetlands/index.htm
Permit Application Status: http://des.nh.gov/onestop/index.htm

PERMIT APPLICATION – ATTACHMENT A
MINOR & MAJOR 20 QUESTIONS

Env-Wt 302.04 Requirements for Application Evaluation – For any major or minor project, the applicant shall demonstrate by plan and example that the following factors have been considered in the project's design in assessing the impact of the proposed project to areas and environments under the department's jurisdiction. Respond with statements demonstrating:
1. The need for the proposed impact.
This project will address a failing 72" corrugated metal pipe that carries the Winnicut River under Walnut Avenue
2. That the alternative proposed by the applicant is the one with the least impact to the wetlands or surface waters on site.
The alternatives considered are as follows: **8' x 7' Box Culvert** **6' concrete Pipe** **12' x 7' Box Culvert** **34' span Bridge** **The proposed action and its alternatives were presented at the Natural Resources Agencies Meeting on October 15, 2014 and January 21, 2015.** **The Department is proposing to replace this structure with a 8'x 7' Box culvert.**
3. The type and classification of the wetlands involved.
R2EM2H – Riverine Emergent Nonpersistent Permanently Flooded
4. The relationship of the proposed wetlands to be impacted relative to nearby wetlands and surface waters.
Part of the overall Winnicut River system
5. The rarity of the wetland, surface water, sand dunes, or tidal buffer zone area.
The Winnicut River has not been identified as a rare surface water of the state.
6. The surface area of the wetlands that will be impacted.
310 ft^2 permanent Riverine **1,773 ft^2 temporary**
7. The impact on plants, fish, and wildlife, but not limited to: a. Rare, special concern species; b. State and federally listed threatened and endangered species; c. Species at the extremities of their ranges; d. Migratory fish and wildlife; e. Exemplary natural communities identified by the DRED-NHB; and f. Vernal pools.
a. The NHB results indicated the presence of great bur-reed (Sparganium eurycarpum), a Rare or Species of Special concern identified within the project area. Coordination with NHB indicated there would not be an impact

as a result of this project

b. There were no Federally listed threatened or endangered species identified within the NHB results and the project will have No Effect on NLEB. If any signs of bat utilization are observed, work will not commence until coordination with USFWS and NHDOT Bureau of Environment has been completed.

c. There were no species identified as being at the extremities of their range.

d. No migratory fish were identified as a result of the NHB

e. No Exemplary natural communities identified by DRED-NHB were listed in the results of the NHB.

f. There were no vernal pools identified or delineated in the project area.

8. The impact of the proposed project on public commerce, navigation and recreation.

During construction, access to the nearby residents and/or commercial businesses will be maintained at all times. Access will be maintained by alternating traffic with a one lane closure. The Winnicut River is non-navigable water which makes it non-conducive to boaters. There are no recreational areas that have been identified in this area except for the possibility for fishing. During construction fishing activities from the banks of the brook will need to occur outside of the construction work zone. When construction is completed, the project as proposed will be a benefit to the public commerce.

9. The extent to which a project interferes with the aesthetic interests of the general public. For example, where an applicant proposes the construction of a retaining wall on the bank of a lake, the applicant shall be required to indicate the type of material to be used and the effect of the construction of the wall on the view of other users of the lake.

The project will not significantly interfere with the aesthetic interests of the general public. The proposed improvements will be more pleasing to the eye than the structure in poor condition.

10. The extent to which a project interferes with or obstructs public rights of passage or access. For example, where the applicant proposes to construct a dock in a narrow channel, the applicant shall be required to document the extent to which the dock would block or interfere with the passage through this area.

The project will not interfere with or obstruct public rights of passage or access. During construction at least one lane of alternating traffic will be maintained at all times. This will ensure access to all nearby businesses and residential homes in this area. Upon completion of this project the bridge will be reopened to two way traffic.

11. The impact upon the abutting pursuant to RSA 482-A:11, II. For example, if an applicant is proposing to riprap a stream, the applicant shall be required to document the effect of such work on upstream and downstream abutting properties.

The project is expected to have a positive impact on abutting properties. The rehabilitated structure will better serve the abutting properties if they need to travel on the road. The riprap that is being installed will help prevent a washout of the structure which will better protect abutting properties.

The project as proposed will not alter the chance of flooding on abutting properties.

12. The benefit of a project to the health, safety, and well-being of the general public.

The project will provide a safer, longer lasting structure and roadway. If the structure is not rehabilitated, the bridge will eventually be load posted or closed. Keeping the roadway open benefits commerce, trade, emergency access, etc, for the general public.

13. The impact of a proposed project on quantity or quality of surface and ground water. For example, where an applicant proposes to fill wetlands the applicant shall be required to document the impact of the proposed fill on the amount of drainage entering the site versus the amount of drainage exiting the site and difference in the quality of water entering and exiting the site.

The surface water currently runs off the bridge at the curb lines, to the wingwalls, and then off the structure. Upon completion of the project surface will drain water in the same manner. This will have no adverse effects on the quality or quantity of surface and ground water. Best Management Practices will be used to prevent any adverse effect to water quality during construction.

14. The potential of a proposed project to cause or increase flooding, erosion, or sedimentation.

Flooding: High and low flows will be improved as a result of this project. The structure will pass more water when the project is completed than it does in the current state.

Erosion: The riprap placed on the banks will prevent erosion and preserve the natural alignment and gradient of the stream channel.

Sedimentation: Nothing that will be a barrier to sediment transport will be installed in this project.
15. The extent to which a project that is located in surface waters reflects or redirects current or wave energy which might cause damage or hazards.
Surface waters will not be reflected or redirected as a result of this project.
16. The cumulative impact that would result if all parties owning or abutting a portion of the affected wetland or wetland complex were also permitted alternations to the wetland proportional to the extent of their property rights. For example, an applicant who owns only a portion of a wetland shall document the applicant's percentage ownership of that wetland and the percentage of that ownership that would be impacted.
The work consists of a repair of an existing bridge structure. There are no similar structures in the vicinity owned by other parties that would require repair.
17. The impact of the proposed project on the values and functions of the total wetland or wetland complex.
The value of the wetland as a habitat for living organisms will be unchanged. The project will be constructed outside the fish spawning season.
18. The impact upon the value of the sites included in the latest published edition of the National Register of Natural Landmarks, or sites eligible for such publication.
This project is not located in or near any Natural Landmarks listed on the National Register.
19. The impact upon the value of areas named in acts of congress or presidential proclamations as national rivers, national wilderness areas, national lakeshores, and such areas as may be established under federal, state, or municipal laws for similar and related purposes such as estuarine and marine sanctuaries.
There are no areas named in acts of congress or presidential proclamations as national rivers, national wildness areas, or national lakeshores that will be impacted as a result of this project.
20. The degree to which a project redirects water from one watershed to another.
The project as proposed will not redirect water from one watershed to another.

Additional comments

US Army Corps of Engineers
New England District

U.S. Army Corps of Engineers
New Hampshire Programmatic General Permit (PGP)
Appendix B - Corps Secondary Impacts Checklist
(for inland wetland/waterway fill projects in New Hampshire)

1. Attach any explanations to this checklist. Lack of information could delay a Corps permit determination.
2. All references to "work" include all work associated with the project construction and operation. Work includes filling, clearing, flooding, draining, excavation, dozing, stumping, etc.
3. See PGP, GC 5 regarding single and complete projects.
4. Contact the Corps at (978) 318-8832 with any questions.

1. Impaired Waters	Yes	No
1.1 Will any work occur within 1 mile upstream in the watershed of an impaired water? See http://des.nh.gov/organization/divisions/water/wmb/section401/impaired_waters.htm to determine if there is an impaired water in the vicinity of your work area.*	X	
2. Wetlands	Yes	No
2.1 Are there are streams, brooks, rivers, ponds, or lakes within 200 feet of any proposed work?	X	
2.2 Are there proposed impacts to SAS, shellfish beds, special wetlands and vernal pools (see PGP, GC 26 and Appendix A)? Applicants may obtain information from the NH Department of Resources and Economic Development Natural Heritage Bureau (NHB) website, www.nhnaturalheritage.org, specifically the book Natural Community Systems of New Hampshire.		X
2.3 If wetland crossings are proposed, are they adequately designed to maintain hydrology, sediment transport & wildlife passage?	X	
2.4 Would the project remove part or all of a riparian buffer? (Riparian buffers are lands adjacent to streams where vegetation is strongly influenced by the presence of water. They are often thin lines of vegetation containing native grasses, flowers, shrubs and/or trees that line the stream banks. They are also called vegetated buffer zones.)		X
2.5 The overall project site is more than 40 acres.		X
2.6 What is the size of the existing impervious surface area?	11949	
2.7 What is the size of the proposed impervious surface area?	11972	
2.8 What is the % of the impervious area (new and existing) to the overall project site?	53%	
3. Wildlife	Yes	No
3.1 Has the NHB determined that there are known occurrences of rare species, exemplary natural communities, Federal and State threatened and endangered species and habitat, in the vicinity of the proposed project? (All projects require a NHB determination.)	X	
3.2 Would work occur in any area identified as either "Highest Ranked Habitat in N.H." or "Highest Ranked Habitat in Ecological Region"? (These areas are colored magenta and green, respectively, on NH Fish and Game's map, "2010 Highest Ranked Wildlife Habitat by Ecological Condition.") Map information can be found at: • PDF: www.wildlife.state.nh.us/Wildlife/Wildlife_Plan/highest_ranking_habitat.htm. • Data Mapper: www.granit.unh.edu. • GIS: www.granit.unh.edu/data/downloadfreedata/category/databycategory.html.	X	
3.3 Would the project impact more than 20 acres of an undeveloped land block (upland, wetland/waterway) on the entire project site and/or on an adjoining property(s)?	X	
3.4 Does the project propose more than a 10-lot residential subdivision, or a commercial or industrial development?		X
3.5 Are stream crossings designed in accordance with the PGP, GC 21?	X	

4. Flooding/Floodplain Values	Yes	No
4.1 Is the proposed project within the 100-year floodplain of an adjacent river or stream?	X	
4.2 If 4.1 is yes, will compensatory flood storage be provided if the project results in a loss of flood storage?		X
5. Historic/Archaeological Resources		
If a minor or major impact project, has a copy of the Request for Project Review (RPR) Form (www.nh.gov/nhdhr/review) been sent to the NH Division of Historical Resources as required on Page 5 of the PGP?**		X

*Although this checklist utilizes state information, its submittal to the Corps is a Federal requirement.
** If project is not within Federal jurisdiction, coordination with NH DHR is not required under Federal law.

NH Department of Transportation
Bureau of Environment
Project # 16060
Env-Wt 904.09 Alternative Design
TECHNICAL REPORT

Env-Wt 904.09(a) - If the applicant believes that installing the structure specified in the applicable rule is not practicable; the applicant may propose an alternative design in accordance with this section.

Please explain why the structure specified in the applicable rule is not practicable (Env-Wt 101.69 defines practicable as *available and capable of being done after taking into consideration costs, existing technology, and logistics in light of overall project purposes.)*

-The excessive cost to achieve complete hydrologic transparency would likely require raising the road and would require extensive design for bridge embankments in the poorly suited alluvial deposits. The alternative design maintains a similar cross section shape for equalization of the downstream flood stage in order to mitigate existing inundation of an adjacent upstream property.

The proposed alternative meets the specific design criteria for Tier 2 and Tier 3 crossings to the *maximum extent practicable*, as specified below.

Env-Wt 904.05 Design Criteria for Tier 2 and Tier 3 Stream Crossings – New Tier 2 stream crossings, replacement Tier 2 crossings that do not meet the requirements of Env-Wt 904.07, and new and replacement Tier 3 crossings shall be designed and constructed:

(a) In accordance with the NH Stream Crossing Guidelines.
-The proposed design is intended to be in the spirit of the NH Stream Crossing Guidelines.

(b) With bed forms and streambed characteristics necessary to cause water depths and velocities within the crossing structure at a variety of flows to be comparable to those found in the natural channel upstream and downstream of the stream crossing.
-The existing crossing is approximately half submerged during normal conditions; this flow regime with depth similar to the natural channel will be preserved. The box culvert will be embedded to minimize interruption of streambed characteristics.

(c) To provide a vegetated bank on both sides of the watercourse to allow for wildlife passage.
-The box culvert connects vegetated banks on either side of the road; connectivity will be improved with additional cross section area.

(d) To preserve the natural alignment and gradient of the stream channel, so as to accommodate natural flow regimes and the functioning of the natural floodplain.
-The crossing is designed to mimic the slope and location that currently exists, thus maintaining the natural alignment and gradient of the stream channel

(e) To accommodate the 100-year frequency flood, to ensure that (1) there is no increase in flood stages on abutting properties; and (2) flow and sediment transport characteristics will not be affected in a manner which could adversely affect channel stability.

-More of the stormwater volume produced upstream will pass through the box culvert prior to peak flow thereby reducing upstream flood stages caused by upstream runoff. The increased cross section of the crossing will help reduce flood stages upstream that are currently caused by backwater. The natural channel has low velocity and the nominal increase in velocity through the box culvert will dissipate quickly without adversely affecting channel stability.

(f) To simulate a natural stream channel.
-The proposed box culvert will include two feet of material to duplicate existing streambed conditions.

(g) So as not to alter sediment transport competence.
-The proposed design will not improve sediment transport.

Env-Wt 904.09(c)(3) – The alternative design must meet the general design criteria specified in Env-Wt 904.01:

Env-Wt 904.01
(a) Not be a barrier to sediment transport;
-The larger cross section will not be a barrier to sediment transport.

(b) Prevent the restriction of high flows and maintain existing low flows;
-The high flows will not be restricted due to the increased cross section area. Low flows will be maintained.

(c) Not obstruct or otherwise substantially disrupt the movement of aquatic life indigenous to the water body beyond the actual duration of construction;
-The movement of aquatic life will be maintained and improved.

(d) Not cause an increase in the frequency of flooding or overtopping of banks;
-The sizing of the box culvert will prevent increased flooding at the next set of culverts downstream.

(e) Preserve watercourse connectivity where it currently exists;
-Watercourse connectivity will be preserved.

(f) Restore watercourse connectivity where: (1) Connectivity previously was disrupted as a result of human activity(ies); and (2) Restoration of connectivity will benefit aquatic life upstream or downstream of the crossing, or both;
-Watercourse connectivity will be restored in the sense of aquatic crossing ability. The proposed box culvert will provide a simulated natural stream channel to allow crossings. The beaver deceivers will also prevent dams from being constructed in the box culvert that would potentially block passage.

(g) Not cause erosion, aggradation, or scouring upstream or downstream of the crossing; and
-Erosion and/or aggradation is not likely with the proposed design, seepage through the road will be reduced by the construction of concrete headwalls.

(h) Not cause water quality degradation.
-It is unlikely that the proposed crossing will cause water quality degradation.

Note: An alternative design for <u>Tier 1</u> stream crossings must meet the general design criteria (Env-Wt 904.01) only to the *maximum extent practicable.

Memo

NH Natural Heritage Bureau
NHB Datacheck Results Letter

To: Matt Urban, NH Department of Transportation
7 Hazen Dr.
Concord , NH 03301

From: Amy Lamb, NH Natural Heritage Bureau
Date: 8/3/2015 (valid for one year from this date)
Re: Review by NH Natural Heritage Bureau
NHB File ID: NHB15-2579 Town: North Hampton Location: Walnut Ave over winnicut river
Description: Replace 72"cmp with box culvert

As requested, I have searched our database for records of rare species and exemplary natural communities, with the following results.

Comments: Please send site photos to determine if there is appropriate habitat for great bur-reed to occur within the project area.

Plant species	State[1]	Federal	Notes
great bur-reed (*Sparganium eurycarpum*)	T	--	Threats to aquatic species include changes in water quality, e.g., due to pollution and stormwater runoff, and significant changes in water level.

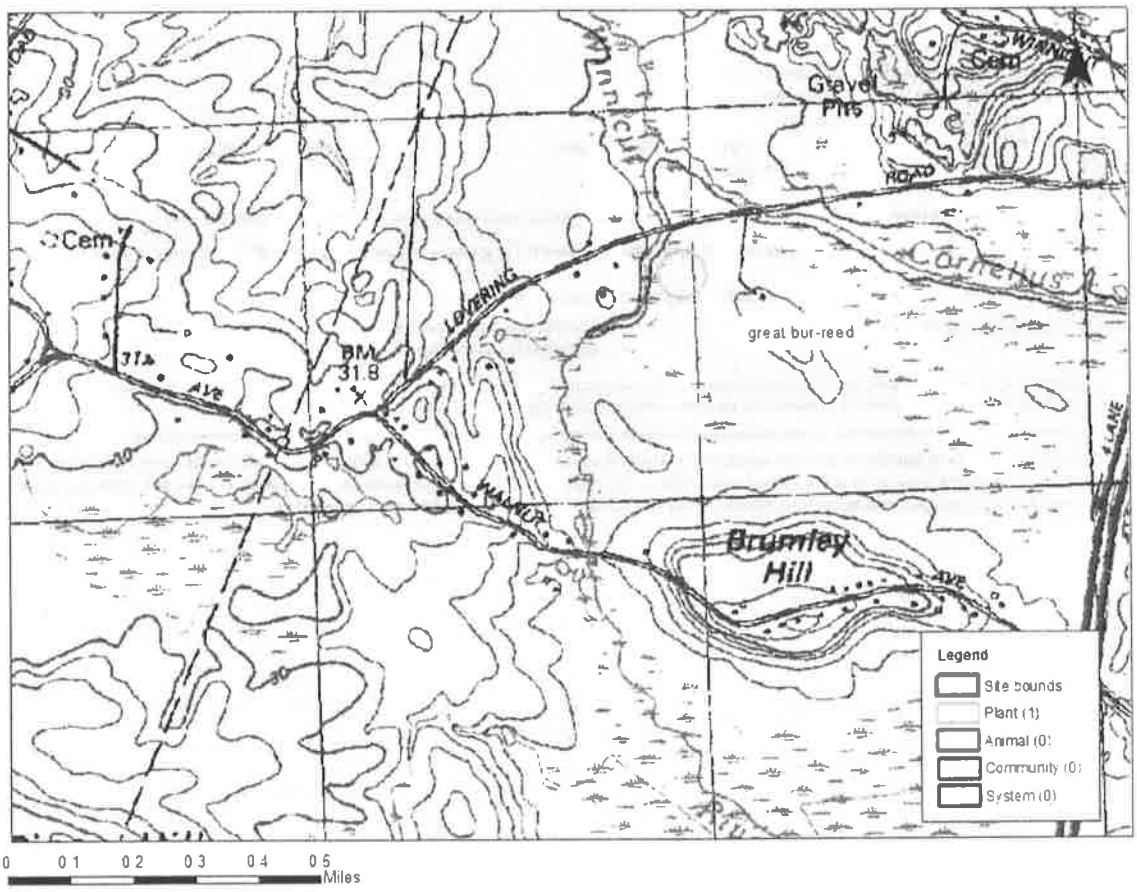
[1]Codes: "E" = Endangered, "T" = Threatened, "SC" = Special Concern, "--" = an exemplary natural community, or a rare species tracked by NH Natural Heritage that has not yet been added to the official state list. An asterisk (*) indicates that the most recent report for that occurrence was more than 20 years ago.

A negative result (no record in our database) does not mean that a sensitive species is not present. Our data can only tell you of known occurrences, based on information gathered by qualified biologists and reported to our office. However, many areas have never been surveyed, or have only been surveyed for certain species. An on-site survey would provide better information on what species and communities are indeed present.

Department of Resources and Economic Development
Division of Forests and Lands
(603) 271-2214 fax: 271-6488

DRED/NHB
172 Pembroke Rd.
Concord, NH 03301

NHB15-2579


Gravel Pits
Cem
Cem
BM 31.8
great bur-reed
Brumley Hill
Legend
Site bounds
Plant (1)
Animal (0)
Community (0)
System (0)
0 0.1 0.2 0.3 0.4 0.5
Miles

New Hampshire Natural Heritage Bureau - Plant Record

great bur-reed (*Sparganium eurycarpum*)

Legal Status		Conservation Status	
Federal:	Not listed	Global:	Demonstrably widespread, abundant, and secure
State:	Listed Threatened	State:	Imperiled due to rarity or vulnerability

Description at this Location

Conservation Rank: Good quality, condition and landscape context ('B' on a scale of A-D).
Comments on Rank:

Detailed Description: 1997: 51-100 mature fruiting plants in a 100-1000 square meter area.
General Area: 1997: Shallow emergent marsh, water pH 6.7. Associated plant species include *Calamagrostis canadensis* (blue-joint), *Carex stricta* (tussock sedge), *Lythrum salicaria* (purple loosestrife), and Alnus rugosa. *Sparganium americanum* (lesser bur-reed) also occurs at the site.
General Comments:
Management Comments:

Location

Survey Site Name: Winnicut River Headwaters
Managed By:

County: Rockingham
Town(s): North Hampton
Size: 2.8 acres Elevation: 50 feet

Precision: Within (but not necessarily restricted to) the area indicated on the map.

Directions: From North Hampton Center take Rte 151 north, then turn left on Loverine Road shortly after crossing Rte 95. Park on the soft shoulder at Winnicut River junction.

Dates documented

First reported: 1997-07-16 Last reported: 1997-07-16

Mark Hemmerlein

From: Lamb, Amy <Amy.Lamb@dred.nh.gov>
Sent: Monday, August 10, 2015 1:27 PM
To: Mark Hemmerlein
Subject: RE: NHB review: NHB15-2579

Hi Mark,

NHB has reviewed the photos and plans that you sent, and has determined that it is unlikely that this plant would be impacted by the culvert replacement project.

If, during site visits or construction, great bur-reed (*Sparganium eurycarpum*) is found within the wetland impact area (temporary or permanent), please notify NHB to determine the appropriate action.

Please include this memo in your wetlands application. Thanks for checking with us.

Amy

Amy Lamb
Ecological Information Specialist
(603) 271-2215 ext. 323

NH Natural Heritage Bureau
DRED - Forests & Lands
172 Pembroke Rd
Concord, NH 03301

From: Mark Hemmerlein [mailto:MHemmerlein@dot.state.nh.us]
Sent: Monday, August 10, 2015 12:37 PM
To: Lamb, Amy
Subject: RE: NHB review: NHB15-2579

Attached is a draft wetlands impact plan. Mark Hemmerlein

From: Lamb, Amy [mailto:Amy.Lamb@dred.nh.gov]
Sent: Monday, August 10, 2015 11:33 AM
To: Mark Hemmerlein
Subject: RE: NHB review: NHB15-2579

Thanks Mark.

Do you have a plan that shows where exactly the areas of impact would be?

Amy

Amy Lamb
Ecological Information Specialist
(603) 271-2215 ext. 323

NH Natural Heritage Bureau
DRED - Forests & Lands
172 Pembroke Rd
Concord, NH 03301

From: Mark Hemmerlein [mailto:MHemmerlein@dot.state.nh.us]
Sent: Monday, August 10, 2015 8:27 AM
To: Lamb, Amy
Subject: RE: NHB review: NHB15-2579

Here is the other side. It is hard to tell them apart. Mark Hemmerlein

From: Lamb, Amy [mailto:Amy.Lamb@dred.nh.gov]
Sent: Monday, August 10, 2015 8:21 AM
To: Mark Hemmerlein
Subject: RE: NHB review: NHB15-2579

Hi Mark,

Do you have any photos of the other end of the culvert? It looks like this might just be the outlet side. If not, any clarification would be appreciated. Thank you,

Amy

Amy Lamb
Ecological Information Specialist
(603) 271-2215 ext. 323

NH Natural Heritage Bureau
DRED - Forests & Lands
172 Pembroke Rd
Concord, NH 03301

From: Mark Hemmerlein [mailto:MHemmerlein@dot.state.nh.us]
Sent: Monday, August 10, 2015 7:40 AM
To: Lamb, Amy
Subject: FW: NHB review: NHB15-2579

As requested in the NHB search are a couple of pictures of the culvert replacement. Please let us know if there are further actions required.

Thanks

Mark Hemmerlein
Water Quality Program Manager
NH Department of Transportation
Bureau of Environment
(603) 271-1550

From: Matt Urban
Sent: Tuesday, August 04, 2015 12:19 PM
To: Mark Hemmerlein
Subject: FW: NHB review: NHB15-2579

Your NHB came back.

From: Lamb, Amy [mailto:Amy.Lamb@dred.nh.gov]
Sent: Tuesday, August 04, 2015 10:06 AM
To: Matt Urban
Subject: NHB review: NHB15-2579

Attached, please find the review we have completed. If your review memo includes potential impacts to plants or natural communities please contact me for further information. If your project had potential impacts to wildlife, please contact NH Fish and Game at the phone number listed on the review.

Best,
Amy

Note: Melissa Coppola is still working part-time on reviews, but I am now the reviewer at NH Natural Heritage. Please address future correspondence to me at: Amy.Lamb@dred.nh.gov

Amy Lamb
Ecological Information Specialist
NH Natural Heritage Bureau
DRED - Forest & Lands
172 Pembroke Rd
Concord, NH 03301
603-271-2215 ext. 323

North Hampton, 16060

Natural Resource Agency Coordination Meeting
January 21, 2015

Draft Minutes

Bob Davis provided a summary of alternatives that have been considered to address a failing 72" corrugated metal pipe that carries the Winnicut River under Walnut Avenue. The pipe has a drainage area of 3,100 acres and is located on very mucky soils. It is estimated that any replacement structure will require up to 20' of muck excavation to provide solid footings. There is also a history of beaver activity in this area.

Four alternatives have been considered and preliminary cost estimates were developed as follows:
8'x7' Box Culvert ($370,000)
6' concrete pipe ($280,000)
12'x7' Box Culvert ($440,000)
34' Span Bridge ($715,000)

At this time, the Department's preferred alternative is the 8'x7' box culvert, which would improve sediment transport and hydraulics, lower the headwater for the 100-year storm, and provide a larger opening with a natural bottom. Additional information is needed before this alternative can be refined, including geotechnical recommendations, the need for easements, and potential utility conflicts. However, based on information known to date, the 8'x7' box culvert does meet the general design criteria of the NHDES Stream Crossing Rules, and does provide a cost-effective improvement to the existing condition. Tim Mallette explained that providing a structure any larger than the 8'x7' box culvert would create the potential for downstream flooding at Lovering Road. The 8'x7' box culvert is the largest structure that can be installed without triggering the need for FEMA remodeling and submittal of a Letter of Map Revision.

Preliminary impacts resulting from the 8'x7' box culvert have been estimated and would consist of approximately 310 square feet of permanent impact; 815 square feet of temporary impact; and 160 linear feet of channel impact.

Carol Henderson noted that the Winnicut River is an important fisheries habitat. She asked if a larger structure, such as the 12'x7' box culvert, would be more of a deterrent to damming by beavers. B. Davis replied that a beaver deceiver structure would be proposed, such as a specially design chain link fence structure, for the culvert inlet in order to prevent damming. This type of structure would not obstruct passage of aquatic organisms. C. Henderson asked that trapping be considered as well, and it was noted that the Department does have licensed trappers that can go to sites like this on occasion as needed.

Gino Infascelli asked for more information on the structures located downstream. B. Davis answered that there are two 12-foot pipes and one 6-foot pipe located downstream.

G. Infascelli noted that the culvert is located in an area identified by the Wildlife Action Plan as having high value wildlife habitat, and any improvements in connectivity should be pursued.

G. Infascelli asked if installing the new culvert directly adjacent to the existing culvert would facilitate construction dewatering. B. Davis responded that doing so would require realigning the natural stream

channel. Christine Perron commented that there would be a meeting soon to discuss construction methods, and this could be brought up for consideration.

C. Henderson asked for information on the project schedule. B. Davis replied that an advertising date has not yet been scheduled. It is anticipated that the project will advertise this calendar year after obtaining the wetlands permit.

C. Perron asked Lori Sommer about the need for mitigation. L. Sommer replied that mitigation would not be required since impacts would be in the same footprint as the existing structure.

North Hampton, 16060

Natural Resource Agency Coordination Meeting
October 15, 2014

Draft Minutes

Bob Davis provided an overview of the project. The project will address a failing 72" corrugated metal pipe that carries the Winnicut River under Walnut Avenue. The project is in the early stages of design. Maintenance crews have had to complete repairs at this location a number of times. The pipe currently has no bottom due to deterioration. The end of the pipe has dropped approximately 2 to 3 feet, creating a sinkhole that the District has covered with steel plates. The road requires patching almost every year and there is recurring erosion at the inlet. The pipe is located on the regulatory floodway of the Winnicut River. There is no history of flooding at this location. Right-of-way information is currently being sought to determine if the ends of the pipe are within existing right-of-way. Prior to 1973, the river was carried under the road by a stone crossing that was located to the east of the existing culvert.

Christine Perron summarized environmental resources known to date. The culvert is a Tier 3 stream crossing under the NHDES Stream Crossing Rules, with a watershed of 4.8 sq. miles. A full stream assessment cannot be completed due to the depth and breadth of open water at the inlet. The estimated bankfull width is 27'. NHDES has identified E. coli, dissolved oxygen, and benthic macroinvertebrates as surface water impairments. Invasive plants are prolific at the inlet and outlet of the culvert and will be addressed appropriately during construction. The property in the northeast quadrant is protected by a conservation easement. The NH Natural Heritage Bureau reported that marsh wren has been documented to the north of the project; no other rare species are known to occur.

B. Davis noted that design alternatives are still being refined. Based on geotechnical borings, the existing soils at this location could limit the feasible alternatives. Additionally, the roadway is narrow, consisting of two 12-foot travel lanes and 1-2 foot shoulders; the culvert is under only 3 feet of fill; and utility lines are located over the inlet. All of these factors will be taken into consideration during the alternatives analysis. A 6' x 6' or 6' x 7' structure, which would pass the 50-year storm, is one alternative being considered. The project currently has an advertising date of March 17, 2014. At this time, the Department is seeking input on potential concerns before the project progresses.

Carol Henderson commented that the Winnicut River is very important to NH Fish & Game and has been the focus of many improvements. Wild trout are located downstream of the project and eels use the tributaries. She recommended that the proposed structure accommodate aquatic organism passage.

Lori Sommer asked what type of structure was being considered. B. Davis replied that it could be a rectangular structure but this was still being evaluated. He added that potential downstream restrictions need to be evaluated, including two pipes under Lovering Road, to determine how much larger the Walnut Avenue crossing could be without causing issues downstream.

Gino Infascelli asked if lining was still under consideration, since it was mentioned in the agenda. B. Davis clarified that lining the pipe is no longer an option due to its deterioration.

C. Henderson asked if the area was influenced by beaver activity. B. Davis said that it was, and that a beaver deceiver type structure may be considered to facilitate future maintenance.

Mark Kern noted that it would be helpful to see a comparison of alternatives at a future meeting. B. Davis agreed that this would be the next step.

07-02-2014 Inlet (Above)
PEM/SS1E #3, Wetland Impacts E and F
R2EM2H #4, Wetland Impacts G, H, and I
PEM/SS1E #5, Wetland Impacts J and K
10-24-2014 Inlet (Below)

07-02-2014 Outlet (Above)
R2EM2H #1, Wetland Impacts A and B
PSS/EM1E #2, Wetland Impacts C and D
10-24-2014 Outlet (Above)